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10/774,733	02/09/2004	Nobumasa Sasa	KOY-18	9205

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EXAMINER	
SELLERS, ROBERT E	
ART UNIT	**PAPER NUMBER**
1712	

DATE MAILED: 04/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/774,733	SASA, NOBUMASA	
	Examiner	Art Unit	
	Robert Sellers	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *5,7 and 8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,6 and 9-12* is/are rejected.

7)☒ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-12* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/19/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-4, 6 and 9-12, drawn to a composition containing an α- or β-substituted oxirane ring-containing compound, classified in class 522, subclass 166.

II. Claim 5, 7 and 8, drawn to a composition containing an α- or β-substituted oxirane ring-containing compound and either an oxetane compound or a vinylether compound (claim 5), or an oxetane compound and a sulfonium salt of formula (4) to (7) (claims 7 and 8), classified in class 525, subclass 529.

Claims 7 and 8 have been included into Group II due to the requirement of an additional oxetane compound (claim 7, line 6).

The inventions are independent or distinct from each other because:

2. Inventions I and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product, and the species are patentably distinct (MPEP § 806.05(j)). In the instant case, the intermediate product is deemed to be useful as an adhesive and the inventions are deemed patentably distinct because there is nothing on this record to show them to be obvious variants.

Restriction for examination purposes as indicated is proper because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification.

3. This application contains claims directed to the following patentably distinct species:

a) The α- or β-substituted oxirane ring-containing compounds.

b) The presence or absence of the cationic photopolymerization initiator of claims 6-8, wherein if its presence is desired, a particular species is identified.

c) The presence or absence of the pigment dispersant of claim 11, wherein if its presence is desired, a certain species is designated.

d) Contingent upon the election of Group II, items a) to c) hereinabove and either the oxetane compound or the vinylether compound, wherein a particular type is indicated.

The species are independent or distinct because the myriad species of compounds within the broad scope of items a), b), c) and d) necessitates numerous additional burdensome searches within classes 522, 523 and 525.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1-12 are generic.

A reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. (MPEP § 809.02(a)).

During a telephone conversation with Donald C. Lucas on March 30, 2006, a provisional election was made with traverse to prosecute the invention of Group I, epoxy compound 21 on page 13 of the specification, cationic photopolymerization initiator SP-1 on page 71, and the presence of Solsperse 32000 pigment dispersant, claims 1-4 and 6-12. Affirmation of this election must be made by applicant in replying to this Office action. Claims 5, 7 and 8 are withdrawn from further consideration under 37 CFR 1.142(b) as being drawn to a non-elected invention.

4. The following informalities have been discovered in the specification:

i) Example Compounds 4 and 6 on page 12 appear to be structurally identical.

ii) The term "3,4-epoxy-" has been inadvertently omitted from epoxy compound EP-9 on page 25, line 11 (See for example the name for epoxy compound EP-12 on page 27, lines 7-8).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Omum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-4 and 6-12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 17-19 and 22-24 of copending Application No. 10/826,059 as represented by U.S. Publication No. 2004/0244641. Although the conflicting claims are not identical, they are not patentably distinct from each other.

5. The claims of the copending application define a composition comprising an alicyclic epoxy compound of Formula (A) (claim 23) identical to general formula (1) of instant claim 2, and Formulae (I) and (II) (claim 24) identical to general formulae (2) and (3), respectively, of instant claim 3.

6. The triarylsulfonium compound of claim 22 of the copending application refers back to claim 17 represented by Formula (T-1) which embraces Formula (T-3) of claim 19 corresponding to Formula (8) of instant claim 8 wherein R^{T32} and R^{T33} are methoxy groups.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6, 7 and 9-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Laksin et al. Patent No. 6,727,295.

7. Laksin et al. (cols. 13-14, Example 3) shows an ink jet ink formulation having a viscosity at 25°C of 14 mPa-s (col. 14, line 11) containing limonene dioxide possessing a molecular weight of 168 (an α-substituted diepoxide according to Chemical abstracts registry no. 96-08-2), UVI 6974 (a mixture of 4-phenylthio)phenyl-diphenylsulfonium di-hexafluoroantimonate and 4-thiophenoxydiphenylsulfonium hexafluoroantimonate according to Chemical abstracts registry no. 104558-94-3, Modified Pigment Black 7 and rheological additive (col. 2, lines 52-62) which facilitates the dispersion of the pigment (col. 1, lines 49-52).

Claims 1, 6, 9 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Frings et al. Patent No. 6,770,686.

8. Frings et al. (col. 11, Example 1) shows a liquid lacquer prepared from limonene dioxide and 2,4,6-triphenyl-pyrylium hexafluorophosphate along with pigments (col. 4, lines 55-58). The liquid form of the lacquer inherently falls within the viscosity range of claim 12.

Claims 1, 6 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Crivello Patent No. 4,319,974.

9. Crivello (col. 7, Example 3) shows a mixture of limonene dioxide and a diaryliodonium hexafluoroantimonate having a viscosity of as little as 50 centipoises (col. 6, lines 3-7, wherein 1 centipoise = 1 mPa-s).

Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by the Journal of Polymer Science: Part A: Polymer Chemistry article by Crivello et al.

10. Crivello et al. (page 3470, Table 2, LDO) shows limonene dioxide cured in the presence a 5-arylthianthrenium salt cationic photointiator which is an improvement over the triarylsulfonium salts of Formulae (5) and (7) of withdrawn claim 7 (page 3466).

Claims 1, 6, 9 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by European Patent No. 118,748.

The European patent (page 3) discloses a composition obtained from a polyepoxide such as epoxycyclohexyl groups-containing diepoxides of Formulae I, II and III wherein the groups located at the α- or β- positions on the oxirane ring encompass C_1-C_9 alkyl radicals (page 5, the last two lines; R_1, R_9, R_{10} and R_{18} of Formulae I and II; and R_1', R_9', R_3" and R_4" are monovalent hydrocarbon radicals), a substituted cycloaliphatic monoepoxide such as limonene monoepoxide having a molecular weight of 152.24 and pigments (page 14, line 9) and pigments (page 14, line 9).

The use of 30%, 40% and 100% by weight of the monoepoxide exhibits viscosities of 44, 32 and 10 centipoises, respectively.

11. The rejection is appropriate under 35 U.S.C. 102(b) due to the presence of the limonene monoepoxide.

Claims 1, 6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent No. 2002-47474.

12. The Japanese patent (translation, page 9, Table 1, Example 4) shows a formulation derived from limonene monoxide (page 7, Example 1-5, line 13, LMO), a triarylsulfonium salt such as Optomer SP-170 as well as Optomer SP-150 or UVI-6974 or UVI-6990 (page 4, paragraph 17, deemed to be suitable photopolymerization initiators according to page 38, lines 3-5 of the specification) and a pigment (page 5, paragraph 26, line 4).

Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by CAPLUS accession no. 1998:808928 for the Polimery article by Crivello et al.

13. The CAPLUS abstract discusses the photointitiated cationic polymerization of cycloaliphatic epoxide monomers such as 1,2-epoxy-1-methylcyclohexane which contains a methyl group in the α- or β- position of the oxirane ring according to registry no. 1713-33-3.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT Publication No. WO 96/21702.

14. The PCT publication (abstracts) set forth an ink derived from limonene dioxide (CAPLUS abstract, page 2, third IT), triphenylsulfonium hexafluorophosphate (page 9, lines 3-4) and pigments.

15. Although the limonene dioxide is not exemplified, it would have been obvious to utilize such a low viscosity epoxy compound to lower the viscosity of the ink to within the limits of claim 12.

Claims 1, 4, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sullivan et al. Publication No. 2004/00225025; Misev Patent No. 6,235,807; Schulthess et al. Patent No. 5,783,358; Hatton et al. Patent No. 2004/0106769 and Shimoda et al. Publication No. 2004/0059085.

16. Sullivan et al. reports an epoxy resin such as poly(methylglycidyl) esters or ethers (page 1, paragraphs 14 and 15) combined with triarylsulfonium salts (page 3, paragraph 39) such as UVI 6974 and 6990 (page 5, Glossary table).

17. Misev (col. 1, line 66 to col. 2, line 4) espouse a composition produced from a β-methylglycidyl ether (col. 2, lines 24-25), triphenyl sulfonium salts (col. 7, lines 8-18) and pigments (col. 7, line 48).

18. Schulthess et al. (col. 2, lines 13-17) is directed to a composition prepared from poly(β-methylglycidyl) esters or ethers (col. 5, lines 1-4 and 20-25), a triaryl sulfonium salt within the confines of Formula (5) of withdrawn claim 7 (col. 14, lines 36-45) and pigments (col. 7, line 48).

19. Hatton et al. (page 1, paragraphs 7-12) depicts a compound possessing terminal epoxypropyl groups of formula II for Y wherein R_1 at the α- or β-position on the oxirane ring includes methyl mixed with a cationic photoinitiator (pages 4-5, paragraph 66).

20. Shimoda et al. (page 4, paragraphs 46 and 47) depicts an ultraviolet ray-curable composition (page 6, paragraph 72) comprising an epoxy compound containing two or more glycidyl groups wherein R_1 or R_2 is a hydrocarbon group along with pigments (page 6, paragraph 63, line 1).

21. Although the presence of methyl or hydrocarbon groups at the α- or β- positions of the oxirane ring is not exemplified, it would have been obvious to include such substitients in the methylglycidyl polyepoxides of Sullivan et al., Misev or Schulthess et al., or the compounds of Hatton et al. or Shimoda et al. in order to control the reactivity of the oxirane group.

Claim 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent No. 118,748; PCT Publication No. WO 96/21702, Misev and Shimoda et al. as applied to the claims hereinabove, and further in view of Yatake Patent No. 7,030,174; Oka et al. Publication No. 2002/0020832 and Shirakawa et al. Publication No. 2001/0045178.

22. The European patent, PCT publication, Misev and Shimoda et al. do not recite the claimed pigment particle diameter of from 10 to 150 nm denoted in claim 10, nor the pigment dispersant of claim 11.

23. Yatake (col. 8, lines 37-53) teaches a mean particle size of preferably from 20 to 80 nm for a carbon black pigment to optimize the dispersion stability.

24. Oka et al. (page 16 paragraphs 212 and 213) reveals the use of a pigment particle diameter of preferably less than 100 nm to be under the wavelength of visible light of from 400 to 700 nm. Furthermore, the dispersion stability of the pigments is improved by the incorporation of a dispersant.

25. Shirakawa et al. (page 4, paragraph 48, Example 1) shows Solsperse 32000 dispersant (identified on page 62 of the instant specification) for C.I. Pigment Red 254.

26. It would have been obvious to use the pigments of the European patent, PCT publication, Misev and Shimoda et al. within the particle diameters of Yatake and Oka et al. in order to optimize the dispersion stability and to mitigate the interference with incident light.

27. It would have been obvious to include the dispersant of Oka et al. and Shirakawa et al. with the pigments of European patent, PCT publication, Misev and Shimoda et al. in order to stabilize the pigment within the formulation.

28. Neither Laksin et al., Frings et al., Crivello '974, the Crivello et al. articles, Japanese Patent No. 2002-47474, PCT Publication No. WO 96/21702 Sullivan et al., Misev, Schulthess et al., Hatton et al. nor Shimoda et al. recites the α- or β-substituted oxirane ring-containing compound of general formula (1) of claim 2 and general formulae (2) and (3) of claim 3. More favorable consideration would be given with respect to the rejections advanced hereinabove if the limitations of claim 2 are inserted into independent claim 1 along with the cancellation of claim 2 and the change of dependency of claim 3 to claim 1.

Claims 1-4, 6, 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent No. 118,748 and Takai Publication No. 2004/0242839.

29. The European patent is described hereinabove. The epoxycyclohexyl groups-containing diepoxides of Formula I, II or III contain groups located at the α- or β- positions on the oxirane ring such as C_1-C_9 alkyl radicals (Formula I and II) or monovalent hydrocarbon substituents (Formula III).

30. Takai (page 3, paragraphs 37 and 38) depicts an epoxycyclohexyl groups-containing diepoxide of formula (I) wherein the groups R^1, R^9, R^{10} and R^{18} located on the α- or β- positions of the oxirane ring include a hydrocarbon group. The bis(dimethylcyclohexanol)methane reactant (page 4, paragraph 49, line 4) contains two methyl groups at the α- and β- positions on the oxirane ring.
The diepoxide is blended with a polymerization initiator such as UVI-6990, SP-170 and SP-150 (page 6, paragraph 90) or triarylsulfonium salts embraced by Formulae (5) and (7) of withdrawn claim 7 (page 10, paragraphs 152 and 153) and pigments (page 12, paragraph 161) to form an ink (page 5, paragraph 63, line 6).

31. Although the presence of such radicals at the α- or β- positions of the oxirane ring is not exemplified, it would have been obvious to include such substituents within disclosed Formula I to III of the European patent and formula (I) of Takai in order to control the reactivity of the oxirane group.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the European patent and Takai as applied to the claims hereinabove, and further in view of Yatake, Oka et al. and Shirakawa et al.

32. The references are described hereinabove. The European patent and Taki do not recite the claimed pigment particle diameter of from 10 to 150 nm denoted in claim 10, nor the pigment dispersant of claim 11.

33. It would have been obvious to use the pigments of the European patent and Takai within the particle diameters of Yatake and Oka et al. in order to optimize the dispersion stability and to mitigate the interference with incident light.

34. It would have been obvious to include the dispersant of Oka et al. and Shirakawa et al. with the pigments of European patent and Takai in order to stabilize the pigment within the formulation.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

35. Japanese Patent No. 1-16802 is drawn to a printing ink (Derwent abstract) containing a cycloaliphatic diepoxide and elected species of SP-1 depicted on page 71 of the specification and denoted in withdrawn claim 8 as Formula (8) (CAPLUS abstract and registry no. 121901-94-8).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Sellers whose telephone number is (571) 272-1093. The examiner can normally be reached on Monday to Friday from 9:30 to 6:00. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

Robert Sellers
Primary Examiner
Art Unit 1712

rs 4/25/2006